U.S. Department of Energy

Root Cause Analysis

Contract and Project Management

Corrective Measure 3

Centralized Risk Register Tools and Methods for DOE Projects and Programs

User Guide

Draft

April 30, 2010

Revisions

Revision Number	Date	Description
A	4/30/2010	Initial Issue – Draft for Comment

Acronyms

CRR	Centralized Risk Register
DOE	U.S. Department of Energy
IT	information technology
T&O	Threats and Opportunities
UID	User ID
WBS	Work Breakdown Structure

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1.0 Introduction

The purpose of this User's Guide is to provide basic information for those using the Centralized Risk Register (CRR) developed for use by U.S. Department of Energy (DOE) projects and programs as a result of Corrective Measure 3 to the Root Cause Analysis for Contract and Project Management.

This register was originally developed for the UPF Project and has been significantly modified to allow automated builds of risks in Pertmaster™ schedules and to accommodate differences in methodologies between projects. The current Centralized Risk Register is being made available for use by any DOE project or program on a voluntary basis. The CRR is a menu driven tool for managing threats and opportunities and has the capability for multiple users to access information simultaneously. The intent is to provide new users and those less experienced with sufficient information to effectively enable input and retrieval of information in support of the a Project Office or Program Office Risk Management program. The CRR is under the control of a CRR Administrator (hereafter referenced as Administrator).

It is important to understand that the CRR is tool designed to facilitate managing a project's risk management business process. This tool stores information for management to make informed management business decisions. This tool does not replace the communication and interaction required to assure that a project has an effective Risk Management program. The business process for managing Risks—Threats and Opportunities (T&O) for a project should be described in an implementing procedure.

To obtain the Access™ database tools and related materials or for answers to questions not addressed in this User's Guide, contact the CRR Software Administrator.

1.1 CRR Software Administrator

The CRR Software Administrator is

Jason Gastelum, PNNL
Jason.gastelum@pnl.gov
(509) 375-2204

2.0 Installation

2.1 Computer Requirements

Running on the Windows™ environment (preferably Windows XP™ or higher), the CRR was developed and tested in Access™ 2007. Non-exhaustive testing on Access™ 2003 shows that it works on this platform also.

Required software ;

- Microsoft .NET Framework 3.5 is required to operate the Risk Register
- Microsoft Office 2000 or later is required to operate the Access Databases
- Microsoft Office 2007 with XPS Writer is required to export reports to PDF format

2.2 Installation Steps

The process for installing the application on a desktop computer is as follows:

1. Ensure that the desktop computer (where the application is to be installed) meets the requirements described above.
2. Unzip the software distribution file (usually named CRR_v100.zip) to your My Documents folder resulting in a folder named CRR_v1.0.0
3. Right click on CRR.exe and choose Create Shortcut. Drag the shortcut to your Desktop.
4. For Richland Operations Office (RL) users, the CRR has the correct locations on the RL computer network for the data and reports databases. No further configuration should be necessary.
5. For non-RL users, additional configuration actions are necessary,

   5.1. For multiple users to be able to access the same database, move the databases
   - CRRv1.0.0_Data.mdb
   - CRRv1.0.0_Reports.mdb

   from "\Data" to a shared network resource (putting them in the same directory). Otherwise, unzip the download package to My Documents, creating the folder CRR_v1.0.0 as you do so.

   5.2. In either case of stand alone or shared network database, the user must complete the configuration steps given in Appendix A. These steps tell the given data database the location of the reports database.

   5.3. Because the default location is not applicable, non-RL users, during the log in phase, will have to navigate to the location of his or her CRR data database.

2.3 Becoming an Authorized User

1. Contact the DOE manager who is responsible for the risk assessment database you wish to access. This person is usually the Federal Project Director or his or her deputy for risk management. Ask this manager to email the Local CRR Administrator, requesting you be given access to which databases and the level of access that you need, such as read only or read/write.
2. The Local CRR Administrator will contact you with a username and a first-time password. After logging in with the first-time pass word, change your password. [This feature will be supported in a future version.]

3.0 Logging In

1. **Double-click** the desktop shortcut to open the CRR. On some DOE networks, a Security Warning as shown below may appear at the top of the Access™ window. Click Options and select “Enable this content,” and OK.

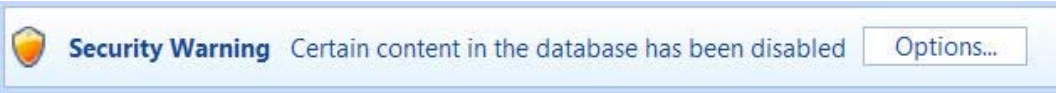


Figure 1. Possible Security Warning

2. The Welcome screen will appear. Click Launch Viewer.

Figure 2. Welcome Screen with Launch Viewer

3. Next, the Login Screen will appear. First click the Browse button and select the file that has a name like CRRv1.0.0_Data.MDB, where the version number (v1.0.0) may be different than shown here. Second, enter User ID (UID) and Password and click Connect. Third, choose the project on which you wish to work from the pull down list.

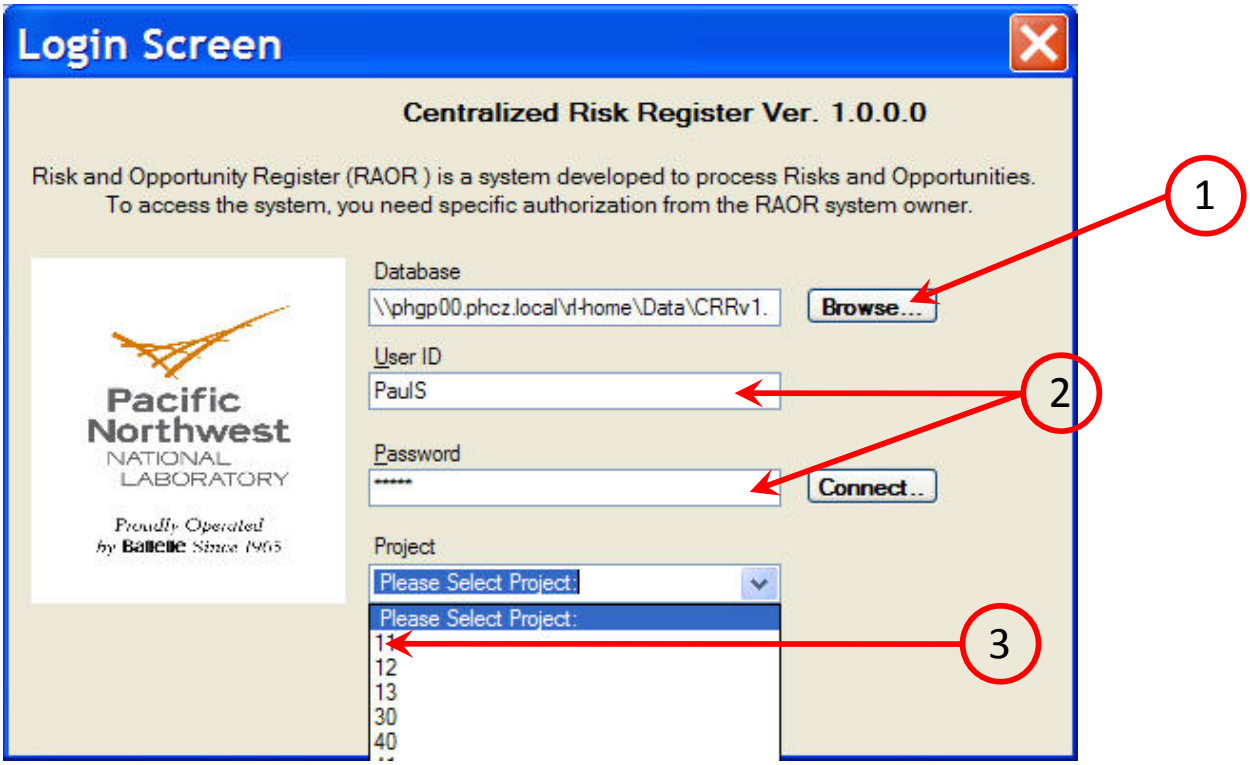


Figure 3. Login Screen

4. After entering your UID and password, hit the Enter key to continue.
5. After a successful login, the Switchboard will appear. All CRR functions and options are available through the Switchboard.

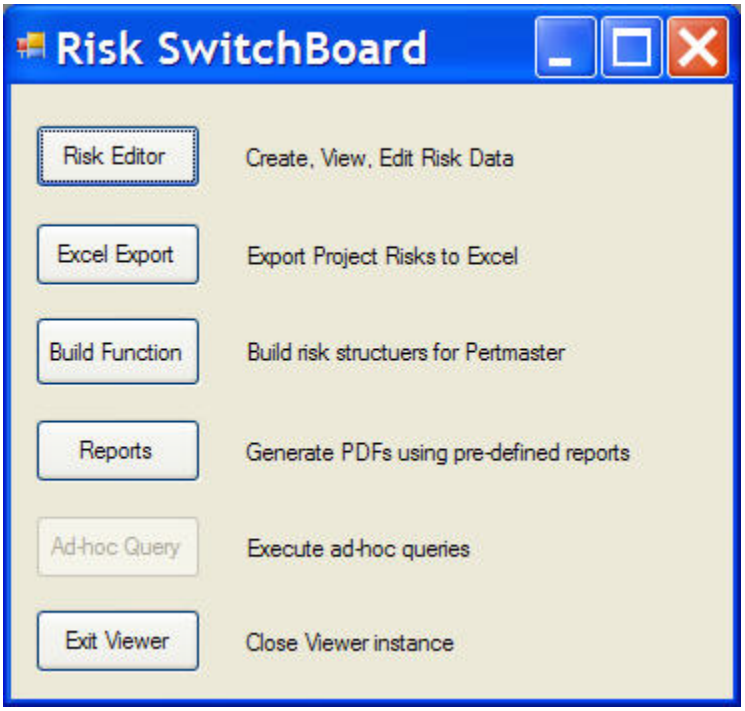


Figure 4. Risk Switchboard

WARNING!!! This system should be used on a network for UCNI and below ONLY !!! If you are uncertain about information sensitivity, consult a DC/RO prior to data entry. If there is a need to enter classified information, the local Administrator must seek the advice of local classification authorities.

4.0 Using the CRR

The CRR is a menu driven application that allows for easy access to its data input forms and reports via the Switchboard. The Risk Editor button is to create, view, or edit risk data. The Excel Export button exports the information about the risks for this project into an Excel™ spreadsheet. The Build Function builds the files or "risk structures" that are needed as input to Pertmaster™. Reports brings the user to a library of report formats which output risk data in PDF format. Ad-hoc Query lets the user devise and execute a query of the CRR database. Exit Viewer should be used to exit the CRR. Clicking on red X in the upper left corner will exit the database without damage, but such action will not log diagnostic information usually logged when the Exit Viewer button is used. Such information is important if the user has need of some help with particular functions of the CRR. How to use each of these buttons is discussed in subsequent sections of this Users Guide.

4.1 Underlying Concepts and Features

4.1.1 Multiple User and Multiple Form Considerations

There are design features for the CRR that allow multiple users to open multiple forms simultaneously.

- Clicking the Risk Editor button on the Switchboard will open up a Risk Editor screen (see Figure 5. The right and left arrows at the top left of the screen are to step from one risk to the next. In the database the risks are numbered sequentially. Clicking the Risk Editor button again will open up another Risk Editor screen, which can be used to view a different risk. Practically, there is no limit to the number of Risk Editor screens that can be opened simultaneously. The Risk Editor screens are numbered sequentially for the convenience of the user. More information on how to use the Risk Editor screen will be given in later parts of this section.

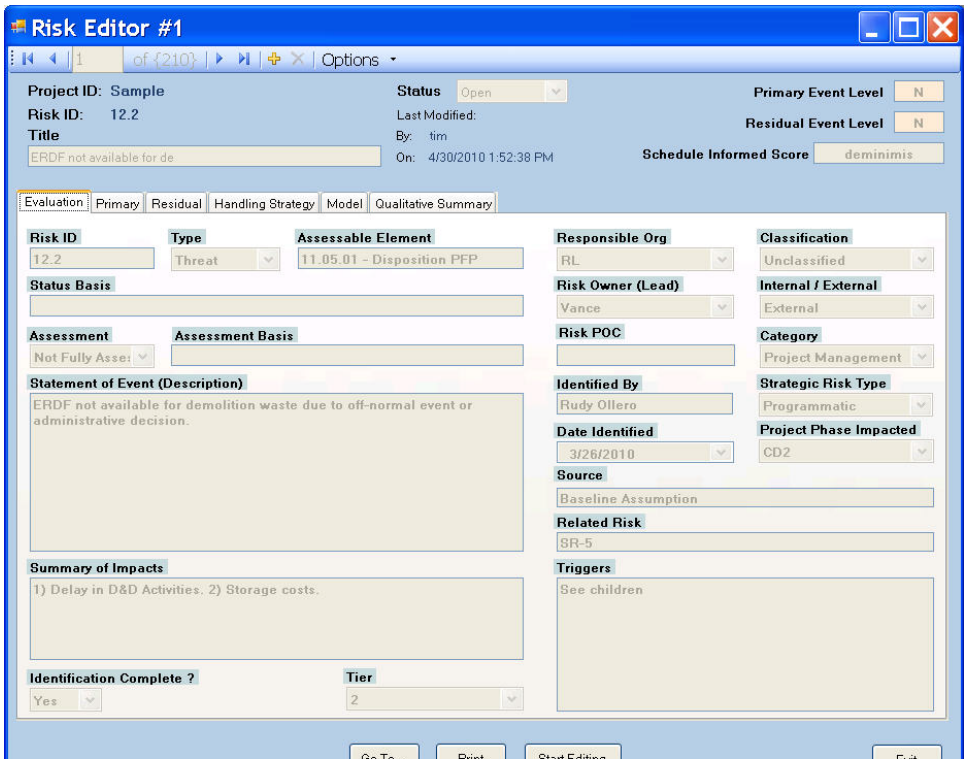


Figure 5. Risk Editor Screen

- There is no limit to the number of users that can be viewing the same risk at the same time. Note that the textual information in the fields is displayed in a gray font. This graying is to signal to the user that he or she is only viewing the risk information. Gray text cannot be changed.
- To edit the information in a risk screen, one must click the Start Editing button at the bottom of the Risk Editor screen. The text in the fields will be changed from gray to black and the checkout notice shown in Figure 6 will appear. Unlike viewing, a particular risk may only be edited by one user at a time. More information on how to use the Risk Editor screen to enter and edit data will be given in later parts of this section.

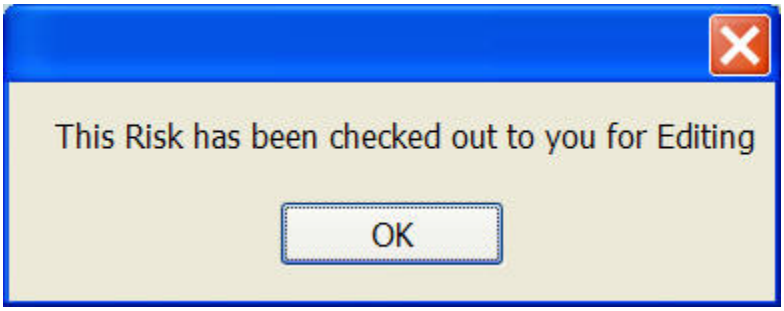


Figure 6. Risk Editor Checkout Notice

4.1.2 Risk Editor General Features

The Risk Editor screen has a central block with 6 tabs—Evaluation, Primary, Residual, Handling Strategy, Model, and Qualitative Summary. Clicking on these tabs brings up different sets of fields of information (white blocks), which may be edited. Each of these tabbed blocks will be discussed in later parts of this section. The Risk Editor screen has a header and footer that are common regardless of which tab is active. The header gives high-level information about the risk displayed and such information is not editable in the header. At the top of the header is a toolbar. The tool bar allows the user to

- Use the arrows to move from one risk to the next or previous, or to the beginning or end of the list of risks. (A more powerful method of navigating among the risks is given in the footer.)
- Use the plus sign (+) to add a new risk (at the end of the list).
- Delete the risk (However, one must be in editing mode to use the delete button.).
- Enter a name as the risk editor. That name is displayed at the top of the screen.

The header of the Risk Editor screen identifies who made the last modification to the risk and the date and time of that modification.

The Risk Editor footer contains several useful buttons.

- The *Go To* button lets the user access any risk in the current database by selecting it from a pull down list. The pull down list is organized alphabetically, with any numeric character preceding and alphabetic one.
- The *Print* button lets the user copy, in pdf format, one of several predesigned reports to a folder specified by the user.
- The *Start Editing* button, discussed in the previous section, checks the risk out to the user, permitting only her or him to edit data in the risk. The gray text in the white boxes changes to black as a cue to the user. To save one's editing changes, the user must click *Stop Editing* and confirm "Do you want to save your Changes?" It is very important that the user leave the editing mode in this fashion for two reasons:
  - Otherwise, one's changes will be lost.
  - Other users cannot edit this risk until the one currently editing the risk has stopped editing. (There is a 2-hour timeout from the start of editing, at which time, the editing user will automatically be stopped by the CRR software. This timeout prevents someone from accidentally checking out a risk indefinitely by forgetting to *Stop Editing*.)
- The *Exit* button closes the present risk and returns the user to the Switchboard. Alternatively, one could use the *Go To* button to navigate to a different risk.

Below the Risk Editor screen is the footer of the Viewer screen. It identifies the database that is the source of the risk info and gives information about the user and his or her computer.

4.1.3 Risk Editor—Evaluation Tab

The Evaluation tab brings up a screen of data elements that allows the user to describe and categorize the risk. The Risk Editor with the Evaluation tab chosen is shown in Figure 7. The various fields are described in detail in Appendix C.

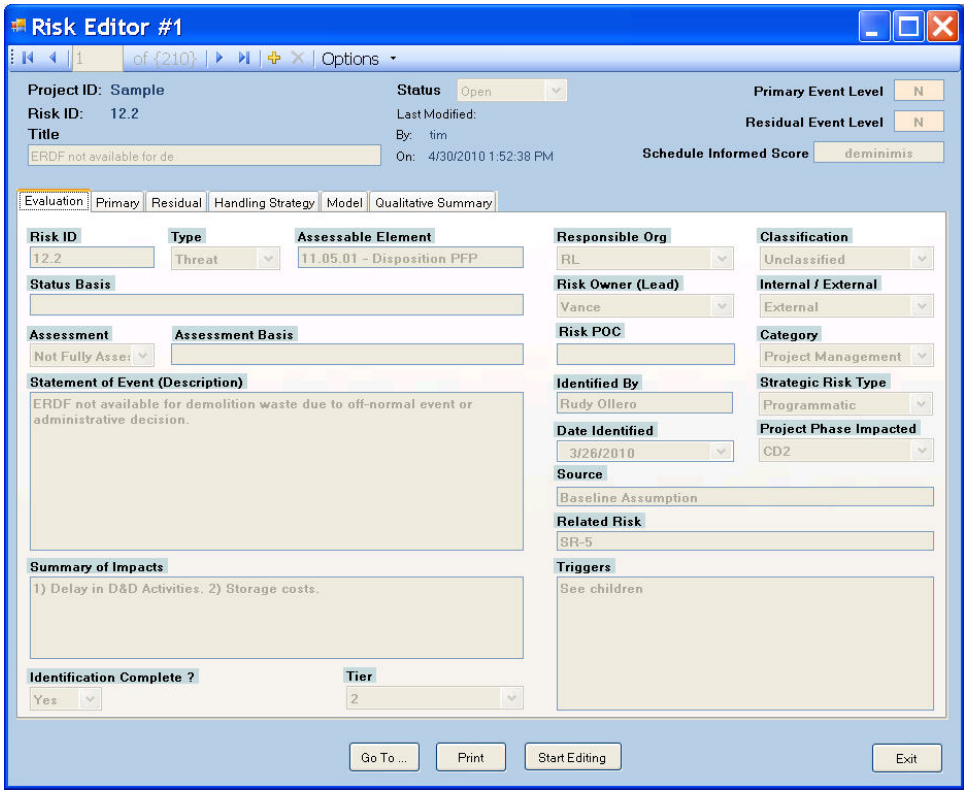


Figure 7. Risk Editor Screen—Evaluation Tab

The Status field value (open/closed) and the Assessment field value (fully assessed/not fully assessed) are based on the judgment of the user (that is, risk analyst). The identification complete flag is automatically set based on the following fields having the required information:

- RiskID
- Type
- Statement of Event (Description)
- Summary of Impacts
- Responsible Org (Owner)
- Risk Owner (Lead)
- Risk POC
- Date Identified

4.1.4 Risk Editor—Primary Tab

The Primary (Figure 8) tab brings up a screen of data elements that allows the user to describe the probability, cost, and duration of the risk if no risk-handling actions are taken. The user first selects from the drop down list a band for probability; for example, H=high, ML=medium low, and N=none. The CRR then populates a default range and % field (that is, most likely). The user may override the default values by entering values directly into the Range and % fields.

Cost and duration estimates may be entered similarly, if the user wants to use a uniform distribution to describe those aspects of the risk. If the user would like to use a triangular distribution for cost or duration, that option is available in the Shape field. If a triangular distribution is chosen, the user will need to input the Min, ML (most likely), and Max.

The Period field lets the user give units (days or years) to the cost or duration. In addition, the user may specify a fixed cost that has no associated time period.

Characterization Complete an automatic box. It will be a Yes—if the following fields are filled in and the logic checks given below are true. Otherwise, it will show No.

- Probability, Cost and Duration
  - Basis
- Cost and Duration
  - Shape
  - Period
- Probability of Success on Handling Strategy tab

LOGIC CHECK #1—Make sure that the following are filled in

- Probability Range and %
- Cost and Duration Range, Min, Max, and for Shape=Triangle ML

LOGIC CHECK #2—All Ranges and Min, ML (if present), and Max are monotonically increasing.

Note that if the Strategy is Enhance or Reduce, similar information describing the risks that remain after the handling actions are taken will be needed for the Residual tab. If the strategy is Avoid, Transfer, Accept for threats or Exploit or Accept for opportunities, the user should make no entries in the Residual tab.

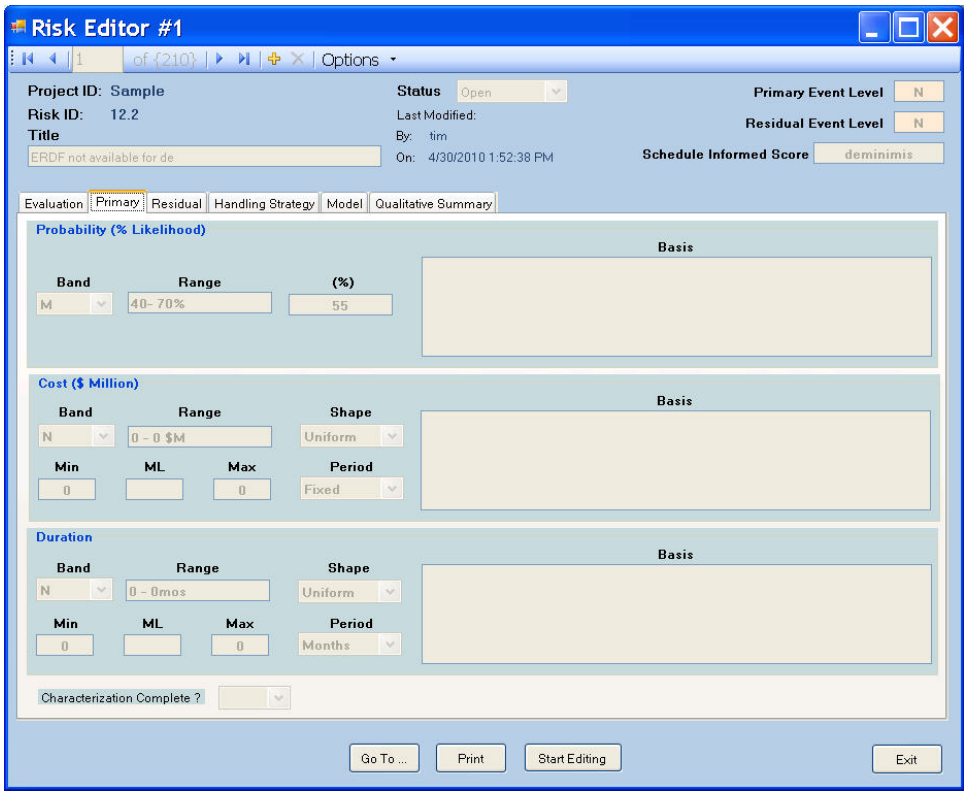


Figure 8. Risk Editor Screen—Primary Tab

4.1.5 Risk Editor—Residual Tab

This tab is used to describe the residual risk; that is, the risk that remains even after the handling actions are taken. If the Strategy is Enhance or Reduce, similar information describing the risks that remain after the handling actions are taken will be needed for the Residual tab. If the strategy is Avoid, Transfer, Accept for threats or Exploit or Accept for opportunities, the user should make no entries in the Residual tab.

This screen (Figure 9) is laid out and used in a manner analogous to the Primary risk screen.

Characterization Complete an automatic box for both the Primary and Residual tab. It will be a Yes—if the following fields are filled in and the logic checks given below are true for both the Primary and Residual tab. Otherwise, it will show No.

- Probability, Cost and Duration
  - Basis
- Cost and Duration
  - Shape
  - Period
- Probability of Success on Handling Strategy tab

LOGIC CHECK #1—Make sure that the following are filled in

- Probability Range and %
- Cost and Duration Range, Min, Max, and for Shape=Triangle ML

LOGIC CHECK #2—All Ranges and Min, ML (if present), and Max are monotonically increasing.

Note: The Characterization Complete boxes on the Primary and Residual tabs are not separate variables. They are repeats of each other, describing the state of completeness of the Primary tab, and if needed, the Residual tab, described as a group.

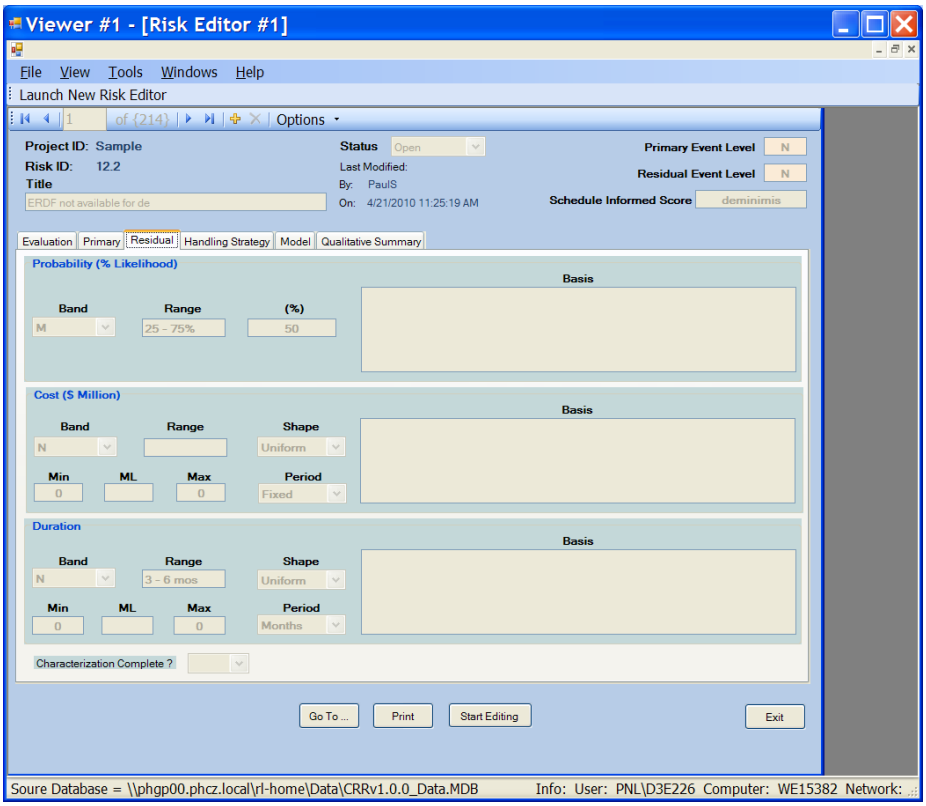


Figure 9. Risk Editor Screen—Residual Tab

4.1.6 Risk Editor—Handling Strategy Tab

Risk management requires that strategies for handling the risks be identified and implemented. However, one of the handling strategies is just to accept the risk. Threat-type risks are handled differently than opportunity-type risks. Figures 10 and 11 show the strategies for threats and opportunities. The user chooses the strategy for handling the risk from the pulldown list in the Strategy field (). If the Strategy is Reduce for a threat or Enhance for an opportunity, the user will need to slect a Probability of Success from the pulldown list. If the Strategy is other than Reduce or Enhance, the probability of success is either 0 or 100%. In such cases, the Probability of Success field is set to NA and is grayed out, preventing the user from changing it. Also for such cases, the Strategy Complete field is marked Yes, automatically. In the cases of the Strategy chosen being Reduce or Enhance, the Strategy Complete box is set to yes only if

the Strategy Description is filled in and at least one action has been entered in the Action Items list at the bottom of the screen.

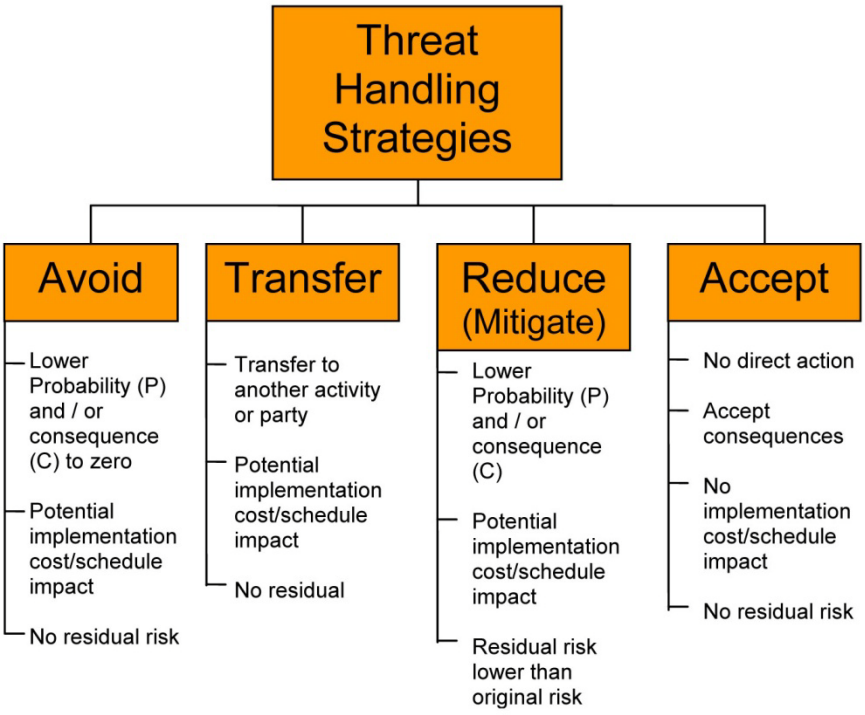


Figure 10. Threat Handling Strategies

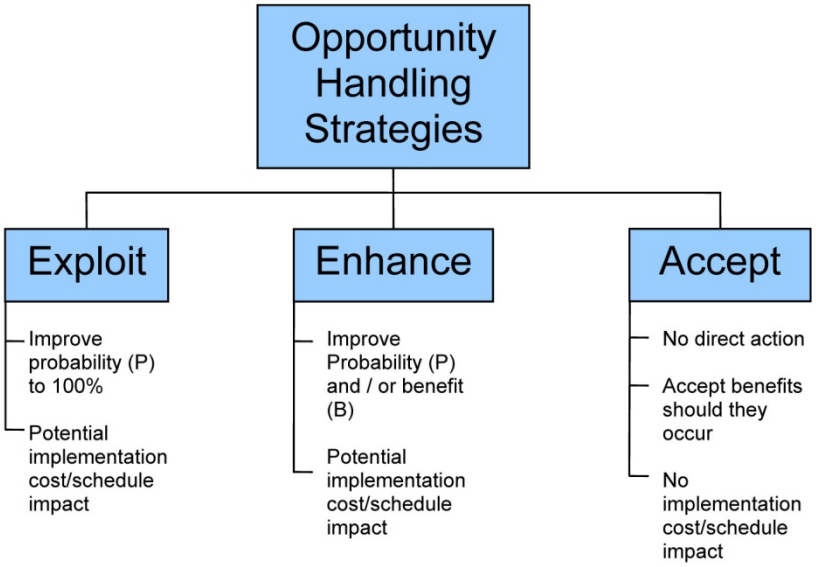


Figure 11. Opportunity Handling Strategies

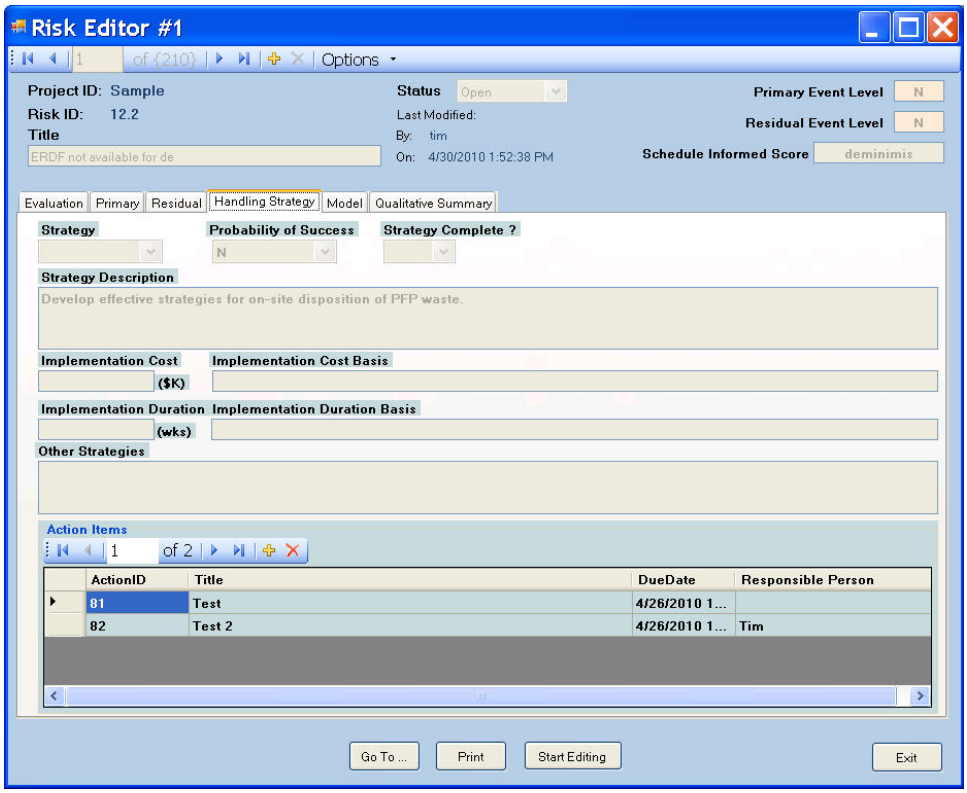


Figure 12. Risk Editor Screen—Handling Strategy Tab

The cost and duration fields are described in Appendix C. The Other Strategies field allows the user to list other potential strategies identified that could be implemented as an alternative if the preferred strategy is not effective.

4.1.7 Risk Editor—Action Screen

The user is also required to list the actions necessary to implement the strategy. Clicking the yellow plus sign in the header of the Action Items part of the screen brings up an Actions screen (Figure 13). The user should specify the person responsible for carrying out the action, its due date, title, and description. An Action must have, at a minimum,

- Responsible Person
- Due Date
- Title
- Status

When the action is complete, the user should change the status to “closed,” note the closure date, and document the basis for closing the action item. The Status Notes field is for the user to record useful information, such as, why isn’t an open action closed yet.

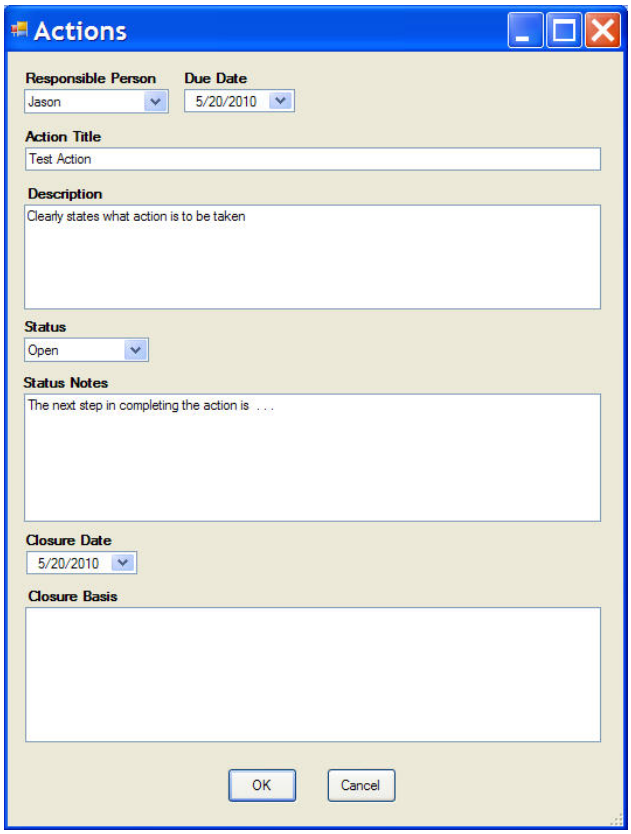


Figure 13. Risk Editor—Action Screen

Clicking the OK button on the Actions screen writes the information to the database and adds a summary line to the list of Action Items. An Action must have, at a minimum,

- Responsible Person
- Due Date
- Title
- Status

If the action item does not have the minimum required information, the user will receive a warning message and remain on the Actions screen. To be marked Closed, the Action must have a Closure Date and Closure Basis. It should also be noted that when an action item is marked Closed, it will no longer be listed on the Handling Strategy screen; however, it will be logged in the CRR database.

The arrows in the Action Items header may be used to navigate the list of action items. Alternatively, one may enter the sequence number (1, 2, 3, etc. from top of list in the X of "X of Y" in the Action Items header. The ActionID is an identifier of the risk in the CRR database and is sequential among all risks.

4.1.8 Risk Editor—Model Tab

The Model tab (Figure 14) is used to enter the information that is needed to have the CRR software output the files needed to run Pertmaster™. If the user is doing only Qualitative Risk

Management, no information should be entered on the Model tab. A description of the data needed for the various fields on the Model tab is given in Appendix C. The Run Flag is a yes/no toggle that lets the user control whether the risk will be run as part of the quantitative analysis. The Valid Flag lets the user know if the information provided is adequate to perform a valid quantitative analysis. The requirements for a valid "build" for Pertmaster™ analysis are somewhat complex. The required fields for a given Risk Model are given in Appendix B. In addition, the CRR software performs various logic checks and displays the results in the Validation Message field. This field indicates missing or inconsistent data needing clarification before the risk can be properly processed by the *Build Function*.

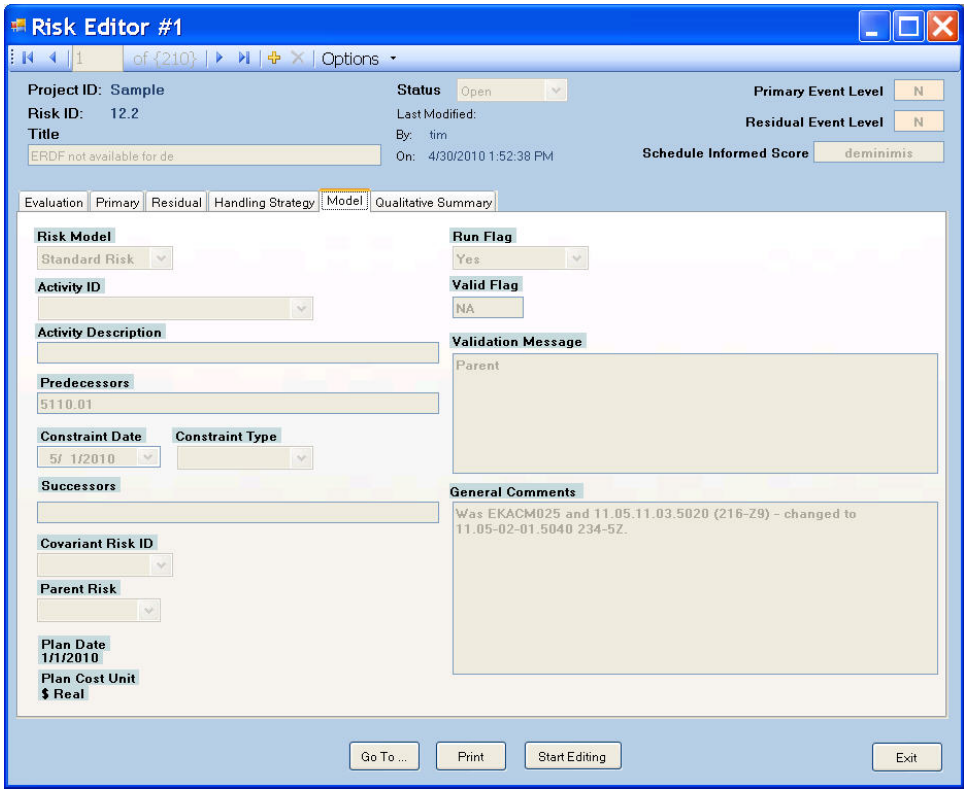


Figure 14. Risk Editor Screen—Model Tab

4.1.9 Risk Editor—Qualitative Summary Tab

The Risk Editor's Qualitative Summary tab (Figure 15) contains no new fields of information. All of its information is displayed in fields on other screens. The Qualitative Summary is given as a convenience to users who wish only to do qualitative risk assessment without all of the numerical data found on the other screens. Some projects are of a size and complexity that risk managers may decide that qualitative risk assessment is all that is necessary to successfully manage such projects risks. In other projects, there may be times early in the risk assessment and risk management activities that qualitative risk assessment may be all that is needed at that time. Some project management teams may wish to "brainstorm" early on as risks are just being identified. The Qualitative Summary tab is to make the process of qualitative risk assessment easier to perform while providing some of the risk data management and reporting tools featured in the CRR software.

Besides letting the user describe and characterize a risk and list the strategy used to handle the risk, the Qualitative Summary tab has a section to let the user describe and track the action(s) needed to implement the handling strategy. See Section 4.1.7 for more information on managing the actions data.

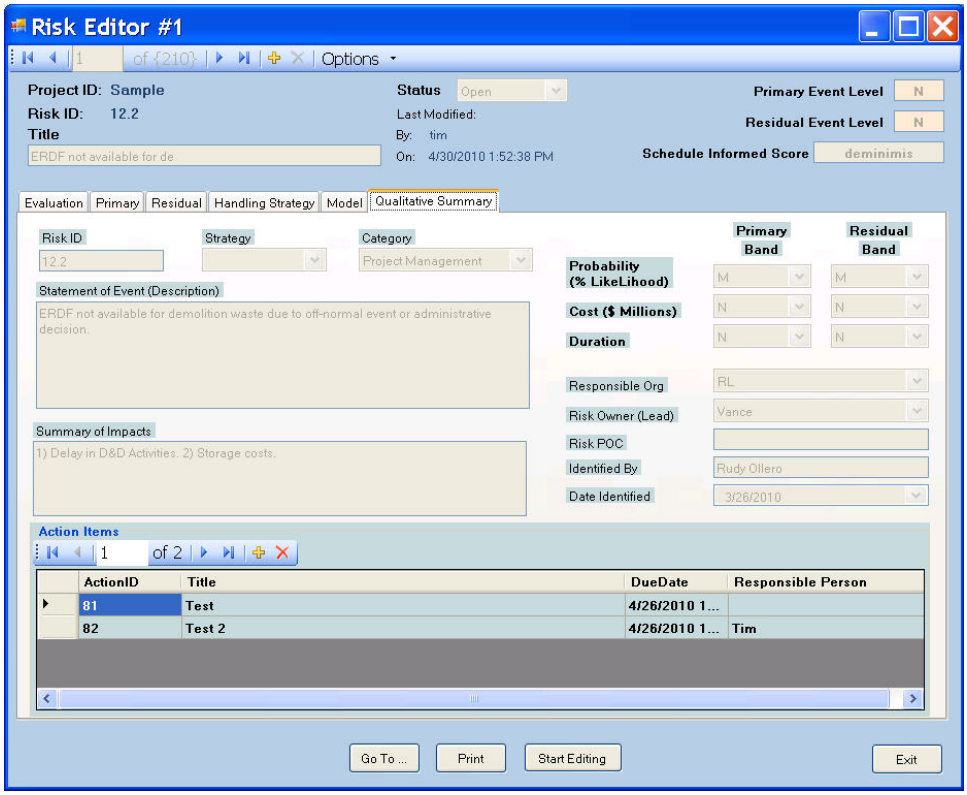
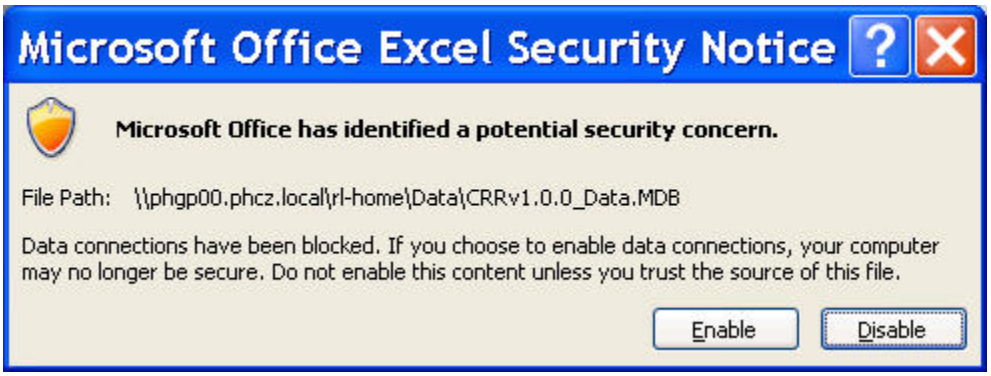


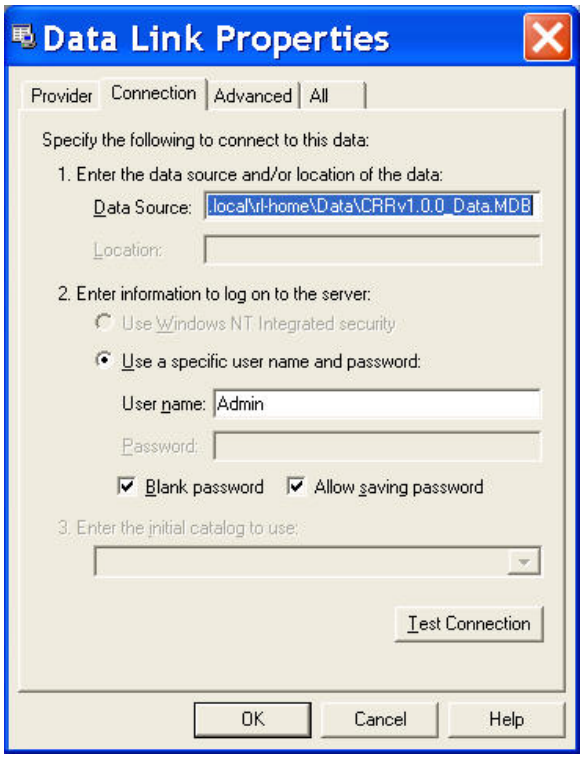
Figure 15. Risk Editor Screen—Qualitative Summary Tab

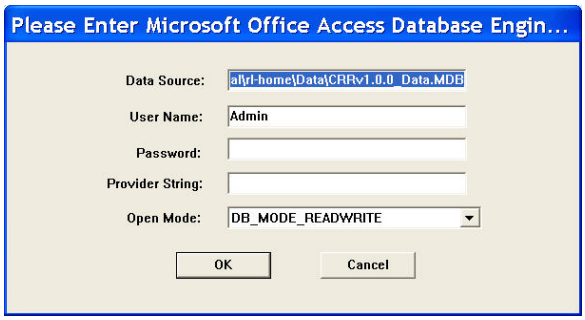
4.2 Excel Export Button

The Switchboard has an *Excel Export* button, which lets the user export every attribute of every risk to an Excel™ spreadsheet. If the user encounters a security notice, such as the one shown below, he or she should enable the data connections.



Also during the process of making the Excel file, the user may encounter dialogue boxes, such as the ones below. The user may have to OK each dialogue box twice before the Excel file will be created. After the Excel file is created, the user may store it in the location of his choice.





4.3 Build Function Button

The *Build Function* button on the Switchboard creates an Excel™ file with all of the data to run Pertmaster™. After the button is clicked the user is asked to identify where to store the Excel™ file. It will take several moments (that is, 10's of seconds) for the Build Function to complete. The amount of time depends on the size of the risk database and the speed of one's computer. There is an expanding "string of dots" at the top of the BuildFX box that lets the user know progress is being made. It may also be useful to know that the name of the file built is a concatenation of the project name, "_Build_," and the date and time stamp.

Should a risk have missing or inconsistent data, the *Build Function* will list the problems with all of the risks that did not "build" properly.

4.4 Reports Button

The Reports button on the Switchboard creates a pdf file. The user is prompted to select which report is to be generated, the location (usually in a folder in My Documents) in which to store it, and the file name of the report. A default report format, Risk_All_Long is provided. However, using standard Microsoft Access™ Report and Query techniques, the user may produce any report he or she desires. Such reports, once designed, may be saved for future use using Save As . . . Save Object As . . . Report. Saving the report will put it in the Reports database so

that it will be one of the choices when the *Reports* button is pushed. Note, the Reports database is accessible from CRR accessing any particular project.

4.5 Ad Hoc Query Button

The Ad Hoc Query button on the Switchboard will allow the user to design and execute ad hoc queries. This feature is not enabled in CRR v.1.0.0. It will be available in a future version.

4.6 Exit Viewer Button

The Exit Viewer button on the Switchboard exits from this particular viewer. If one has other viewers open, they are not affected. Exit Viewer should be used to exit the CRR. Clicking on red X in the upper left corner will exit the database without damage, but such action will not log diagnostic information usually logged when the Exit Viewer button is used. Such information is important if the user has need of some help with particular functions of the CRR.

Appendix A – Installation and Configuration Details

1. Pre-Requisite Software
   - Microsoft .NET Framework 3.5 is required to operate the Risk Register
   - Microsoft Office 2000 or later is required to operate the Access Databases
   - Microsoft Office 2007 with XPS Writer is required to export reports to PDF format

2. Download Instructions

Download Application and Data using "CRR_v100.zip" and, if necessary, download dotNet solution using "CRR_v100_src.zip"

3. Installation Instructions

CRR is a standalone client application and does not require a formal installation process. Simply unzip the contents as described below.

3.1. Unzip contents of "CRR_v100.zip" to any local or network location (MyDocuments is preferred)

3.2. If desired, move the databases CRRv1.0.0_Data.mdb and CRRv1.0.0_Reports.mdb from "\Data" to a shared network resource (putting them in the same directory).

3.3. Copy Pertmaster views ScheduleView.sheet and PasteView.sheet from "\Support" to your Pertmaster install directory "..\Pertmaster\Macros\Others\"

3.4. Optionally create a shortcut for the Application on your desktop
   3.4.1. Navigate to CRR.exe
   3.4.2. Right-click, select 'Create Shortcut'
   3.4.3. Drag the shortcut to your desktop (this action may require elevated user permissions)

3.5. Optionally download the dotNET Solution "CRR_v100_src.zip" and unzip contents to "\[install path]\CRR_v1.0.0\Code\"

4. Configuration Instructions

Enable Microsoft Access Macros by

4.1. Open CRRv1.0.0_Reports.mdb

4.2. Click the Office button

4.3. Click "Access Options"

4.4. Select "Trust Center"

4.5. Click "Trust Center Settings"

4.6. Select "Macro Settings"

4.7. Select the last option to "Enable all macros"

Configure Linked Table "_risks" to point to the source data

1. Click "Database Tools" menu
2. Click "Linked Table Manager"
3. Check the box next to the entry for "_risk"
4. Check the box next to "Always prompt for new location"
5. Click "OK" to refresh the table
6. When prompted, browse to "CRRv1.0.0_Data.mdb" and click "Open"
7. Important! - Uncheck the box next to "Always prompt for new location"

5. Software Updates

Periodically, we may version the client software. In most cases, users will simply have to replace their local copy of the client (CRR.exe) with the new release. On occassion, a change may be required by the DBA, as the software is compliled against specific versions of the database. In this instance, detailed instructions will be provided for the DBA.

6. Point of Contact

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Appendix B — Pertmaster™ Validation Checks

The parameters needed for the Build Function for a standard risk are listed in the table below.

Table B - 1 Parameters for a Standard Risk

Parameter	Priority	Purpose
Activity ID	Required	Specifies the activity subject to increased duration or cost.
In-Series Predecessor	Optional	Specifies the in-series risk predecessor.
Covariant Risk ID	Optional	Specifies the activity with which the risk is covariant.

The parameters for the Build Function for a standard opportunity are listed in the table below.

Table B - 2 Parameters for a Standard Opportunity

Parameter	Priority	Purpose
Activity ID	Required	Specifies the activity subject to increased duration or cost.
In-Series Predecessor	Optional	Specifies the in-series risk predecessor.
Covariant Risk ID	Optional	Specifies the activity with which the risk is covariant.

Appendix C — Glossary of Database Fields

The *Risk Editor* button brings up a screen with six tabs. Each tab has a different set of database fields that give all of the various attributes of each risk in the database. The table below gives the purpose of each attribute (field). The fields in the form header are common to each tab and are listed first. After that, the attributes are organized by tab, with Quantitative Summary being first and subsequent tabs in the same order as on the Risk Editor screen. Generally the attributes are listed in the same order as on the screen listed top to bottom and left to right.

The Reference column gives the provenance of each attribute with:

Ref 1 being the DOE Risk Management Guide DOE G 413.3-,7 dated 9-16-08,

Ref 2 being Richland Operations Office's Project Risk Management, effective September 2009, and

Ref 3 being the UPF Risk and Opportunity Register User Guide SD-IT-801768-A139 Revision 1, September 3, 2009

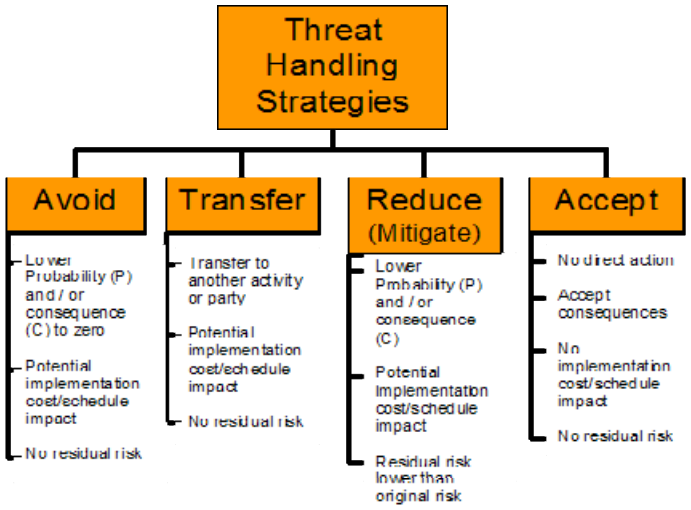
Generally, when a risk attribute was described in more than one reference, the lower numbered reference is given.

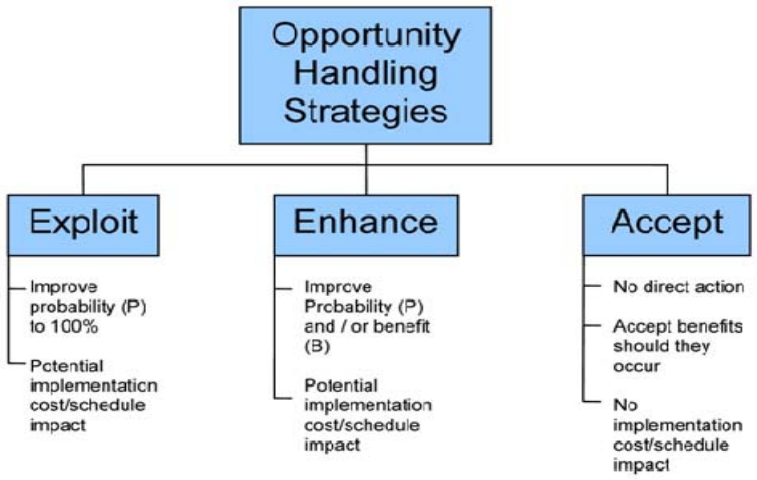
Form Tab	Attribute	Reference	Purpose
Form Header	Project ID	[Ref 2 p. B1]	Indicates which project the currently being viewed.
Form Header	Risk ID	[Ref 1 p. 50]	Indicates the unique risk identifier for the selected project for this risk. The display of the Risk ID in the header is not editable.
Form Header	Title		A short name for the risk, useful in reporting
Form Header	Status	[Ref 1 p.50]	**Open**--Risk still exists or may be realized **Closed**--Risk no longer exists. It was either realized (and impacts have been incorporated into the project baseline) or avoided. Closed risks are skipped by the build function
Form Header	Last Modified By		User name
Form Header	Last Modified On		Date and Time
Form Header	Primary Event Level	[Ref 1 p. 50]	Qualitative score for the event values before handling actions, based on the probability impact diagrams specified for the project.
Form Header	Residual Event Level	[Ref 1 p. 50]	Qualitative score for the event values after handling actions, if any, based on the probability impact diagrams specified for the project
Form Header	Schedule Informed Score	[Ref 2 p. 17]	Through a schedule-informed scoring process, a user may assign a risk a level of Critical, Significant, or De minimis.
Qualitative Summary	Risk ID		For the selected project, this is the unique risk identifier in the database. The user may edit the Risk ID in this field, thus defining it as he sees fit. Duplicates the field on the Evaluation tab
Qualitative Summary	Strategy		Documents the planned risk management strategy. Duplicates the Strategy field under Handling Strategy tab. (See that descritption for more details.)
Qualitative Summary	Statement of Event	[Ref 1 p. 50]	Description or Risk Statement, clearly states the nature of the risk, or what it is that may occur. Duplicates the same filed on the Evalustion tab.
Qualitative Summary	Summary of Impacts	[Ref 1 p. 50]	A qualitative description of the impact(s) a risk may have on project objectives in terms of cost and schedule. Specifically, describes what activity in the schedule is delayed/extended and what is included in the increased cost. Provides a basis for the cost/schedule impact. Duplicates the field on the Evaluation tab.
Qualitative Summary	Responsible Org (Owner)	[Ref 2 p. 29]	The organization responsible for the management of the risk and its potential impacts.
Qualitative Summary	Risk Owner (Lead)	[Ref 1 pp. 50, 5, 6]	Person responsible for tracking, monitoring, documenting, and ensuring the handling response or strategy is implemented and reported upon. For government-owned risks, this person is generally the Federal Project Director. For contractor-owned risks, this is generally the Contractor Project Manager.
Qualitative Summary	Identified By		The individual or group who initially identified the risk
Qualitative Summary	Risk POC	[Ref 2 p. 23]	Person with adequate expertise in project risk management, who assists a Risk Manager or an organizational element manager in the identification, assessment, management, and resolution of crosscutting and/or project-level risks associated with the manager's work-scope and responsibilities.
Qualitative Summary	Category	[Ref 3 p. 6]	Category of the activity with which the risk is associated, such as, Construction, Design, Enabling Assumption, Portfolio, Procurement, Project Management, Readiness Process, Technology Development, Testing, or Safety in Design. Duplicates the field on the Evaluation tab.
Qualitative Summary	Probability--Primary Band	[Ref 1 p. 49]	The qualitative likelihood that the risk occurs if no handling actions are taken, for example, High, Medium High, Medium, Medium Low, Low, or None. Duplicate of the Probability Band on the Primary tab.
Qualitative Summary	Porbability--Residual Band	[Ref 1 p. 49]	The qualitative likelihood that the risk occurs even after handling actions are taken. Duplicate of the Probability Band on the Residual tab.
Qualitative Summary	Cost--Primary Band	[Ref 1 p. 49]	The qualitative cost category of the direct incremental cost of the risk if no handling actions are taken, for example, High, Medium High, Medium, Medium Low, Low, or None. Duplicate of the Primary Cost Band on the Primary tab.
Qualitative Summary	Cost--Residual Band	[Ref 1 p. 49]	The qualitative duration category of the duration impact of the risk after handling actions are takenf for example, High, Medium High, Medium, Medium Low, Low, or None. Duplicate of the Cost Band on the Residual tab.

Qualitative Summary	Duration--Primary Band	[Ref 1 p. 49]	The qualitative duration category of the duration impact of the risk if no handling actions are takenf for example, High, Medium High, Medium, Medium Low, Low, or None. Duplicate of the Duration Band on the Primary tab.
Qualitative Summary	Duration--Residual Band	[Ref 1 p. 51]	The qualitative duration category of the duration impact of the risk if the handling actions are taken. Duplicate of the Duration Band on the Residual tab.
Evaluation	Risk ID		For the selected project, this is the unique risk identifier in the database. The user may edit the Risk ID in this field, thus defining it as he sees fit.
Evaluation	Type	[Ref 1 pp. 61 & 64]	This is set by the Analyst but is modifiable by the 'Risk Model' field. **Threat**--Negative impact to project. May increase project cost and/or duration. **Opportunity**--Positive impact to project. May decrease project cost and/or duration.
Evaluation	Assessable Element	[Ref 1 p. 50]	Identifies the WBS number and title to which the risk applies. Instead of a WBS element, this field may also identify a collection of WBS elements grouped as a subproject
Evaluation	Status Basis	[Ref 2 p. B2]	Generally used to record the reason(s) for closing a risk
Evaluation	Assessment	[Ref 2 p. B1]	Indicates the assessment status of the risk. Risks will build regardless of Assessment status if enough information is provided. To toggle a risk on or off, use the Run Flag field.
			Fully Assessed--All risk parameters have been specified, including handling actions, if necessary.
			Not Fully Assessed--Risk has been identified but not all parameters have been elicited.
Evaluation	Assessment Basis		Notes related to the assessment value
Evaluation	Statement of Event	[Ref 1 p. 50]	Description or Risk Statement, clearly states the nature of the risk, or what it is that may occur
Evaluation	Summary of Impacts	[Ref 1 p. 50]	A qualitative description of the impact(s) a risk may have on project objectives in terms of cost and schedule. Specifically, describes what activity in the schedule is delayed/extended and what is included in the increased cost. Provides a basis for the cost/schedule impact.
Evaluation	Identification Complete ?		This yes/no flag is automatically set based on the following fields not being blank: RiskID, Type, Statement of Event (Description), Summary of Impacts, Responsible Org (Owner), Risk Owner (Lead), Risk POC, and Date Identified
Evaluation	Responsible Org (Owner)	[Ref 2 p. 29]	The organization responsible for the management of the risk and its potential impacts.
Evaluation	Risk Owner (Lead)	[Ref 1 pp. 50, 5, 6]	Person responsible for tracking, monitoring, documenting, and ensuring the handling response or strategy is implemented and reported upon. For government-owned risks, this person is generally the Federal Project Director. For contractor-owned risks, this is generally the Contractor Project Manager.
Evaluation	Identified By		The individual or group who initially identified the risk
Evaluation	Risk POC	[Ref 2 p. 23]	Person with adequate expertise in project risk management, who assists a Risk Manager or an organizational element manager in the identification, assessment, management, and resolution of crosscutting and/or project-level risks associated with the manager's work-scope and responsibilities.
Evaluation	Date Identified	[Ref 3 p. 49]	The date the risk was initially identified
Evaluation	Tier	[Ref 3 p. 29]	Some risks are so significant that they need to be tracked at the highest levels of management. These are Tier 1 risks. Some risks do not need to be tracked at the highest levels of management. These are Tier 2 risks. Tier 2 is the default for this field.
Evaluation	Source	[Ref 2 p. B1]	Optional reference to a meeting or document that identified this risk
Evaluation	Related Risk	[Ref 2 p. B1]	Indicates a master portfolio risk or a related risk in this projects risk register or another risk register
Evaluation	Triggers	[Ref 1 . p. 64]	A risk trigger is an event, occurrence or sequence of events that indicates that a risk may be about to occur, or the pre-step for the risk indicating that the risk will be initiated.
Evaluation	Classification	[Ref 3 p. 7]	OUO, UCNI, Unclassified

Evaluation	Internal/ External	[Ref 1 p. 61]	**Internal**--Risks that the project has direct control over, such as organizational behavior and dynamics, organizational structure, resources, performance, financing, and management support. **External**--Risks outside the project control or global risks inherent in any project such as global economic downturns, trade difficulties affecting deliverables such as construction materials or political actions that are beyond the direct control of the project.
Evaluation	Category	[Ref 3 p. 6]	Category of the activity with which the risk is associated, such as, Construction, Design, Enabling Assumption, Portfolio, Procurement, Project Management, Readiness Process, Technology Development, Testing, or Safety in Design
Evaluation	Strategic Risk Type	[Ref 1 p. 62] [Ref 1 p. 64]	**Programmatic**--Risks that are captured within the scope, cost, or schedule of the projects within the program. **Technical**--Risks that include disciplines such as mechanical, electrical, chemical engineering, safety, safeguards and security, chemistry, biology, etc.
Evaluation	Project Phase Impacted	[Ref 1 p.7]	CD 1 through CD 4 and all are the choices
Primary (Characterization) Probability	Band	[Ref 1 p. 49]	The qualitative likelihood that the risk occurs if no handling actions are taken, for example, High, Medium High, Medium, Medium Low, Low, or None.
Primary (Characterization) Probability	Range	[Ref 1 p. 49]	The default range of values for the selected band. This read-only field is for reference and is automatically populated when the Primary Probability is specified.
Primary (Characterization) Probability	(%)	[Ref 2 p. B3]	This field is automatically populated as the midpoint of the default range for the selected Primary Probability Band. Users may override the default value.
Primary (Characterization) Probability	Basis	[Ref 1 p. 50]	Documents the basis for the specified probability value
Primary (Characterization) Cost	Band	[Ref 1 p. 49]	The qualitative cost category of the direct incremental cost of the risk if no handling actions are taken, for example, High, Medium High, Medium, Medium Low, Low, or None.
Primary (Characterization) Cost	Range	[Ref 1 p. 49]	The default range of values for the selected band. This field is for reference and is automatically populated when the Primary Cost Band is specified.
Primary (Characterization) Cost	Shape	[Ref 1 p. 22]	Distribution type (Uniform or Triangle) from which Pertmaster will sample to set the amount of a resource used by the Primary risk for each iteration.
Primary (Characterization) Cost	Min	[Ref 1 p. 22]	The minimum incremental cost impact if the Primary risk is realized. This field is automatically populated when the Primary Cost Band is specified. Users may override the default value. Required for both uniform and triangular distribution types.
Primary (Characterization) Cost	ML	[Ref 1 p. 22]	The most likely incremental cost impact if the Primary risk is realized. This entry is optional. A Most Likely Cost is only required to sample from a triangular distribution.
Primary (Characterization) Cost	Max	[Ref 1 p. 22]	The maximum incremental cost impact if the Primary risk is realized. This field is automatically populated when the Primary Cost Band field is specified. Users may override the default value. Required for both uniform and triangular distribution types.
Primary (Characterization) Cost	Period	[Ref 2 p. B5]	Time unit of the specified costs. **Fixed**--Costs specified are total incremental cost. **Daily**--Cost specified is a daily increment. **Annual**--Cost specified is an annual incremental cost.
Primary (Characterization) Cost	Basis	[Ref 2 p. B5]	Documents the basis for the selected cost values
Primary (Characterization) Duration	Band	[Ref 1 p. 49]	The qualitative duration category of the duration impact of the risk if no handling actions are takenf for example, High, Medium High, Medium, Medium Low, Low, or None..
Primary (Characterization) Duration	Range	[Ref 1 p. 49]	The default range of values for the selected band. This field is for reference and is automatically populated in when the Primary Duration Band is specified.

Primary (Characterization) Duration	Shape	[Ref 1 p. 22]	Distribution type (Uniform or Triangle) from which Pertmaster will sample to set the risk duration used by the Primary risk for each iteration.
Primary (Characterization) Duration	Min	[Ref 1 p. 22]	The minimum schedule impact if the Primary risk is realized. This field is automatically populated when the Primary Duration Band is specified. Users may override the default value. Required for both uniform and triangular distribution types.
Primary (Characterization) Duration	ML	[Ref 1 p. 22]	The most likely schedule impact if the Primary risk is realized. This entry is optional. A Most Likely Duration is only required to sample from a triangular distribution.
Primary (Characterization) Duration	Max	[Ref 1 p. 22]	The maximum duration impact if the Primary risk is realized. This field is automatically populated when the Primary Duration Band is specified. Users may override the default value. Required for both uniform and triangular distribution types.
Primary (Characterization) Duration	Period	[Ref 2 p. B6]	The time unit in which duration impacts are specified, that is, **Days**, **Months**, or **Years**.
Primary (Characterization) Duration	Basis	[Ref 2 p. B6]	Documents the basis for the selected duration impacts
Primary (Characterization) Footer	Residual Characterization Complete?		This is an automatically determined yes/no box. The yes condition depends on a certain minimum risk characteristic being defined and on the numerical data's self consistency. See the Users Manual section on Risk Editor—Primary Tab.
Residual (Characterization) Probability	Band	[Ref 1 p. 49]	The qualitative likelihood that the risk occurs even after handling actions are taken
Residual (Characterization) Probability	Range	[Ref 1 p. 49]	The default range of values for the selected band. This read-only field is for reference and is automatically populated when the Residual Probability is specified.
Residual (Characterization) Probability	(%)	[Ref 2 p. B10]	field is automatically populated as the midpoint of the default range for the selected Residual Probability Band. Users may override the default value.
Residual (Characterization) Probability	Basis	[Ref 1 p. 51]	Documents the basis for the specified probability value
Residual (Characterization) Cost	Band	[Ref 1 p. 49]	The qualitative cost category of the direct incremental cost of the risk if the handling actions are taken.
Residual (Characterization) Cost	Range	[Ref 1 p. 49]	The default range of values for the selected band. This field is for reference and is automatically populated when the Residual Cost Band is specified.
Residual (Characterization) Cost	Shape	[Ref 1 p. 22]	Distribution type (Uniform or Triangle) from which Pertmaster will sample to set the amount of a resource used by the Residual risk for each iteration.
Residual (Characterization) Cost	Min	[Ref 1 p. 22]	The minimum incremental cost impact if the Residual risk is realized. This field is automatically populated when the Residual Cost Band is specified. Users may override the default value. Required for both uniform and triangular distribution types.
Residual (Characterization) Cost	ML	[Ref 1 p. 22]	The most likely incremental cost impact if the Residual risk is realized. This entry is optional. A Most Likely Cost is only required to sample from a triangular distribution.
Residual (Characterization) Cost	Max	[Ref 1 p. 22]	The maximum incremental cost impact if the Residual risk is realized. This field is automatically populated when the Residual Cost Band field is specified. Users may override the default value. Required for both uniform and triangular distribution types.
Residual (Characterization) Cost	Period	[Ref 1 p. 22]	Time unit of the specified costs. **Fixed**--Costs specified are total incremental cost. **Daily**--Cost specified is a daily increment. **Annual**--Cost specified is an annual incremental cost.

Residual (Characterization)Cost	Basis	[Ref 1 p. 51]	Documents the basis for the selected cost values
Residual (Characterization)Duration	Band	[Ref 1 p. 51]	The qualitative duration category of the duration impact of the risk if the handling actions are taken.
Residual (Characterization) Duration	Range	[Ref 1 p. 49]	The default range of values for the selected band. This field is for reference and is automatically populated in when the Residual Duration Band is specified.
Residual (Characterization) Duration	Shape	[Ref 1 p. 22]	Distribution type (Uniform or Triangle) from which Pertmaster will sample to set the risk duration used by the Residual risk for each iteration.
Residual (Characterization) Duration	Min	[Ref 1 p. 22]	The minimum schedule impact if the Residual risk is realized. This field is automatically populated when the Residual Duration Band is specified. Users may override the default value. Required for both uniform and triangular distribution types.
Residual (Characterization) Duration	ML	[Ref 1 p. 22]	The most likely schedule impact if the Residual risk is realized. This entry is optional. A Most Likely Duration is only required to sample from a triangular distribution.
Residual (Characterization) Duration	Max	[Ref 1 p. 22]	The maximum duration impact if the Residual risk is realized. This field is automatically populated when the Residual Duration Band is specified. Users may override the default value. Required for both uniform and triangular distribution types.
Residual (Characterization) Duration	Period	[Ref 2 p. B13]	The time unit in which duration impacts are specified, that is, **Days**, **Months**, or **Years**.
Residual (Characterization) Duration	Basis	[Ref 1 p. 51]	Documents the basis for the selected duration impacts
Residual (Characterization) Footer	Residual Characterization Complete?		This is an automatically determined yes/no box. The yes condition depends on a certain minimum risk characteristic being defined and on the numerical data's self consistency. See the Users Manual section on Risk Editor—Residual Tab.
Strategy	Strategy		Documents the planned risk management strategy.
	For Threats	[Ref 1 p.28]	

	For Opportunities	[Ref 1 p.28]	
Strategy	Probability of Success	[Ref 1 p. 26] [Ref 2 p. 11]	The probability that the management strategy is successful and that the primary likelihood (or probability) and/or impacts are reduced. This value is used to weight the primary and residual risks when evaluating a weighted scenario using probabilistic branching.
Strategy	Strategy Complete ?	[Ref 3 p. 20]	Yes/No as determined by the person describing the strategy
Strategy	Strategy Description	[Ref 3 p. 19]	Explanatory notes on risk management strategy. Allows analyst to further document management strategy.
Strategy	Implementation Cost ($K)	[Ref 1 p. 51]	Necessary cost for implementing the handling strategy
Strategy	Implementation Cost Basis	[Ref 1 p. 51]	Assumptions and other factors that describe how the Implementation Cost is estimated.
Strategy	Implementation Duration (wks)	[Ref 1 p. 51]	Necessary schedule for implementing the risk handling strategy.
Strategy	Implementation Duration Basis	[Ref 1 p. 51]	Assumptions and other factors that describe how the Implementation Duration is estimated.
Strategy	Other Strategies	[Ref 3 p. 53]	Other potential strategies identified that could be implemented as an alternative if the preferred strategy is not effective.
Strategy	Actions	[Ref 1 p. 36]	Handling actions identified for this risk so they may be tracked. **ActionID**, **Title**, and **DueDate** are listed for each action listed on the Handling Strategy screen. Clicking on an ActionID brings up an Action screen.
Action	Responsible Person		Person responsible for seeing that the actionis completed by the du date
Action	Due Date		Date the action is to be completed
Action	Action Title		Short description of the action
Action	Description		Clearly states what action is to be taken
Action	Status		**Open** or **Closed**
Action	Status Notes		Usualy contains a status update, that is, why is the action not yet closed.
Action	Closure Date		Date that the action was actually completed
Action	Closure Basis		Gives the justfiction for closing the action item.
Model	Risk Model	[Ref 2 p. 14]	Indicates the type of risk behavior that will be modeled in Pertmaster. Values are No Cost Extension, Distributed Cost, New Scope, Delay Scope, Standard Opportunity, and On-Demand Opportunity.
Model	Activity ID		The WBS no. of a scheduled activity that the specified risk will either be linked to, or inherit properties from.
Model	Predecessor	[Ref 2 p. 14]	The ID(s) of a scheduled activity or risk that will be completed before the specified risk will start.
Model	Activity Description		
Model	Constraint Date	[Ref 2 p. 14]	The date of the constraint.
Model	Constraint Type	[Ref 2 p. 14]	The type of constraint that fixes the start of finish of the risk in the schedule.
Model	Successor	[Ref 2 p. 14]	The ID of a scheduled activity or risk that will come after the specified risk.
Model	Covariant Risk ID	[Ref 2 p. 14]	The ID of a valid risk or scheduled activity with which the task existence of the specified risk is covariant. (Only positive covariance is modeled).

Model	Plan Date		The start date of the activity in the project baseline schedule associated with this risk. This field may warn the Analyst if a risk has been assigned to an already completed activity.
Model	Plan Cost Unit $Real		The cost units for the cost data in the associated plan files. It is imported along with the other cost data in the files output by P3. This field is used to convert cost data in the risk register to the same cost unit as the plan file into which the risk structures will be pasted. Values for this field include $ Real, $ Thousand, and $ Million.
	Run Flag		Toggle to control whether risk will be run as part of a quantitative analysis.
Model	Valid Flag	[Ref 2 p. 14]	Indicates if adequate information is provided to quantitavely characterize the specified risk.
Model	Validation Message	[Ref 2 p. 14]	Indicates missing or inconsistent data needing clarification before the risk can be validated.
Model	General Comments		General Comments about the Risk Model or its attributes.
Model	Parent Risk	[Ref 2 p. 14]	The ID of a parent risk, if applicable